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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,061	07/11/2001	Mohammad Sarwar Nasir	99,576-A	9376

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EXAMINER
DAVIS, DEBORAH A

ART UNIT	PAPER NUMBER
1641	

DATE MAILED: 07/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/903,061	NASIR ET AL.	
	Examiner	Art Unit	
	Deborah A Davis	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

1. The amendment filed January 17, 2003 is acknowledged and has been entered.

2. The information disclosure statement filed January 6, 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. The parent application 09/931,750 was ordered at applicant's request, but does not contain the Information Disclosure Documents listed in the instant application for review, therefore the information referred to therein has not been considered.

3. Applicant's request for consideration of German application #4013004 (abstract only); listed in the IDS of May 17, 2002, has been considered by the Examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4-6, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nasir et al (Fluorescence Polarization, 1999) in view of Pestka et al (Food Technology 1995).

Nasir et al teaches field tests to determine mycotoxins in human, animal and grain diseases and that Fluorescence Polarization is inexpensive and simple to use (pg. 181). Nasir et al teaches a homogenous assay using fluorescence polarization to analyze mycotoxins in grains (See abstract). Mycotoxins that are extracted from grains, with a suitable solvent and the sample are added into the antibody solution. A mycotoxin antigen of interest is labeled with a fluorescent molecule (tracer) and is added to the antibody solution. Once the reaction takes place, the fluorescent polarization of the tracer is then measured (pg. 182, para. 1).

Nasir et al does not point out if the particular mycotoxin assayed was deoxynivalenol (DON) or its derivative, trichothecenes.

However, Pestka et al teaches immunological assays for the detection of DON and trichothecenes in food. DON and its form trichothecenes, can elicit a variety of toxic symptoms in humans and animals ranging from gastroenteritis to cancer. Besides human health, DON and its derivative, trichothecenes have a major economic impact on live stock productivity as a result of lower quantity and quality of animal products, smaller litters, infertility etc. The Food and Agriculture Organization estimates that 25% of the world's crops are affected by mycotoxins.

It would have been obvious to one of ordinary skill in the art such as Nasir et al to be motivated to detect the levels of deoxynivalenol (DON) and its derivative

trichothecenes in food, as taught by Pestka et al, to detect toxic levels of contamination in food. DON and its derivative trichothecenes, and for that matter other mycotoxins are a health hazard to humans and animals and therefore needs to be tested to determine safe and toxic levels in food. Further, one skilled in the art will understand the importance of detecting the above mentioned toxins because they are a public health risk.

5. Claims 2 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nasir et al in view of Pestka et al, as applied to claims 1, 4-6, and further in view of Michel et al (USP#5,741,654).

The teachings of Nasir et al are set forth above and differ from the instant claim in not particularly pointing out a particular type of fluorescein (6-aminofluorescein) used in the assay.

However, Michel et al discloses a Fluorescence Polarization assay for the quantification of human autoantibodies in which a variety of fluoresceins are used as tracers, such as 5-carboxyfluorescein, thiourefluorescein, and one mentioned in particular is the 6-aminofluorescein moiety which is one of the preferred moieties of choice in the said assay (col. 8, lines 1-22).

It would have been obvious to one of ordinary skill in the art to employ a fluorescein moiety such as any one of the structures named above because they are well known in the art to use in Fluorescence Polarization Immunoassays for quantitation of a sample and either fluorcein used can yield the same results.

6. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nasir et al in view of Pestka et al, as applied to claims 1 and 5, and in further view of McMahon et al (USP#5,166,078).

The teachings of Nasir et al and Pestka et al are set for above and differ from the instant claims in not teaching DON and its derivative Trichothecenes in different known samples to make a standard curve.

However, McMahon et al teaches a method for measuring a hapten that is poorly soluble in an aqueous solution such as mycotoxins (col. 1, lines 29-40). The invention permits fast, safe, and convenient measurements of haptens, which are either insoluble or unstable in aqueous solution by providing standards such as hapten-conjugates that are soluble and stable in aqueous solution. The standards are used to determine the amount of haptens that are present in the assay (col. 1, lines 43-48). To determine the amount of hapten in a sample, the reaction of the hapten and the antibody is compared to the reaction of the hapten-conjugate and the antibody. The conjugates of the invention are used as controls in standard immunoassays (col. 2, lines 29-40). The reactivity of the conjugate are compared to the hapten standards and a standard curve was created relating hapten levels to hapten-conjugate levels (col. 3, lines 9-16).

It would have been obvious to one of ordinary skill in the art to use a plurality of haptens as taught by McMahon et al in standard solutions having different known concentrations and comparing them with hapten-conjugates to create a standard curve to permit fast, safe and convenient measurements of haptens. It would be obvious to

combine this teaching into the assay of Nasir et al in further view of Pestka et al being that Nasir et al is assaying for mycotoxins and Pestka et al discloses the importance of testing for these mycotoxins in grain. One skilled in the art of food technology would know that mycotoxins include vomitoxin where said vomitoxins include DON and its derivative Trichothecenes (col. 1, lines 36-38). Further, one skilled in the art would know that certain levels of these mycotoxins found in different amounts of grain are toxic to human and animals and a standard curve is needed to compare those levels that would be of concern.

7. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nasir et al in view of Pestka et al, and Zuk et al (4,281,061).

The teachings of Nasir et al and Pestka et al are set forth above and differ from the instant claims in not teaching the assay in the form of a kit.

Zuk et al. Teach that as a matter of convenience the reagents of an immunoassay can be provided as kits, where the reagents are in predetermined ratios, so as to substantially optimize the sensitivity of the assay in the range of interest " (col. 22, lines 63-66).

It would have been prima facie obvious to one of ordinary skill in the art at the time of applicant's invention to take the homogeneous assay for the determination of mycotoxins as taught by Nasir et al in view of Pestka et al in the specific detection of DON and its derivative trichothecenes and format them into a kit, because Zuk et al teaches that it is convenient to do so and one can enhance sensitivity of a method by

providing reagents as a kit. Further, the reagents in a kit are available in premeasured amounts, which eliminates the variability that can occur when performing the assay.

Response to Arguments

8. Applicant's arguments filed January 17, 2003 have been fully considered but they are not persuasive.

9. Applicant argues that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, applicant specifically argues that the Nasir et al reference does not teach Fluorescence Polarization assays of mycotoxins "***generally***" but rather that Fluorescence Polarization has potential in this area is not found persuasive because Nasir et al points out that Fluorescence Polarization (FP) is a powerful technique for analyzing mycotoxins in grains and humans. Nasir et al recited: "work by various groups, including our own, have ***demonstrated*** that the technique can replace a substantial number of solid phase assays" (see summary). Therefore, Nasir et al not only discloses that Fluorescence

Polarization assays are powerful tools for analyzing mycotoxins, but confirms this technique by demonstration.

10. Applicant's argument that the Pestka reference does not mention the Fluorescence Polarization technique at all is not found persuasive because one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Further, the Pestka reference is not relied upon for its teachings of Fluorescence Polarization, because it was already taught in the reference of Nasir et al. The Pestka reference was relied upon for its teachings of the toxic effects of mycotoxins, such as DON and trichothecenes, found in food consumed by animals and humans. The Food and Agriculture Organization estimates that 25% of the world's crops are affected by mycotoxins (Pestka, page 120, paragraph 2). Those statistics alone is motivation in itself as to why one of ordinary skill in the art would want to modify the Nasir et al reference, that already teaches a Fluorescence Polarization assay for mycotoxins, to further include detecting other forms of these mycotoxins such as DON, trichothecenes and others mentioned in the Pestka reference.

11. Applicant's argument that Examiner has failed to identify any prior art teaching of a tracer comprising DON or other trichothecene conjugated to a fluorophore and has not identified any teachings that the conjugate would be able to bind to an antibody is not found persuasive because Nasir et al teaches that a mycotoxin antigen of interest is

labeled with a suitable tracer combined with an antibody exhibited fluorescence polarization (Nasir, page 182, columns 1 and 2).

Conclusion

12. No claims are allowed.

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah A Davis whose telephone number is (703) 308-4427. The examiner can normally be reached on 8-5 Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (703) 305-3399. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1123.

Deborah A. Davis
CM1, 7D16
July 3, 2003

LONG V. LE
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07/07/03